

IN THE CLAIMS:

1. (currently amended) A method of forming a microlens structure comprising:
providing a transparent material;
forming a hard mask overlying the transparent material;
patterning an opening in the hard mask;
forming a lens shape by etching the hard mask and the transparent material using an isotropic wet etch that etches the hard mask faster than the transparent material, whereby the hard mask is etched laterally to expose a larger area of the underlying transparent layer as the etch proceeds; [[and,]]

removing the hard mask; and,

filling the lens shape with a lens material selected from a group consisting of HfO₂, TiO₂, ZrO₂, and ZnO₂.

2. canceled

3. (original) The method of claim 1, wherein the transparent material is silicon oxide, or glass.

4. (original) The method of claim 1, wherein the transparent material is an optical resin.

5. (original) The method of claim 3, wherein the isotropic wet etch is a buffered HF etch.

6. (currently amended) The method of claim [[2]] 1,
wherein the lens material has a higher refractive index than the
transparent material.

7. canceled

8. (currently amended) The method of claim [[2]] 1,
further comprising forming an AR coating overlying the lens material.

9. (original) The method of claim 8, wherein the AR
coating is a single layer AR coating.

10. (original) The method of claim 9, wherein the single
layer AR coating comprises silicon oxide, glass, or optical resin.

11. (currently amended) The method of claim [[2]] 1,
further comprising planarizing the lens material.

12. (original) The method of claim 11, wherein
planarizing the lens material comprises chemical mechanical polishing.

13. (original) The method of claim 11, wherein
planarizing comprises reflowing the lens material.

14. canceled

15. (previously presented) The method of claim 1, wherein the hard mask is TEOS oxide and the transparent material is thermal oxide.

16. (original) The method of claim 12, wherein the hard mask is a doped silicon oxide and the transparent material is undoped silicon oxide.

17. (original) The method of claim 1, wherein the opening in the hard mask has non-vertical walls.

18. (original) The method of claim 1, further comprising a second transparent material overlying the transparent material.

19. (original) The method of claim 18, wherein the second transparent material has a faster etch rate than the transparent material.

20. (original) The method of claim 1, wherein the transparent layer is provided overlying a substrate having a photodetector formed thereon.

21. (currently amended) A method for forming a microlens structure, the method comprising:
providing a transparent material;
forming a hard mask overlying the transparent material;

patterning an opening in the hard mask;
applying an isotropic wet etch;
etching the hard mask faster than the transparent material;
laterally etching the hard mask to expose an underlying area
of the transparent material;
forming a lens shape in the transparent material; [[and,]]
removing the hard mask; and,
filling the lens shape with a lens material selected from a
group consisting of HfO₂, TiO₂, ZrO₂, and ZnO₂.